analyzed for 365 days after and before the accrual period. **RESULTS:** On a total of 2,962,498 subjects observed, 594 patients were hospitalized for melanoma (53.4% males) during 2009 (prevalence rate: 20.0 per 100,000). Among them, 43% had at least one chronic comorbidity, hypertension is the most common (14.6%) followed by combination of dyslipidemia and hypertension (3.0%). Therapy for melanoma is made both in and outside the hospital. Interferon alfa-2b was the most prescribed treatment outside the hospital with an average cost of €110, followed by Temozolomide (€40.7) and Erythropoietin (€39.6). During one-year of follow-up, 13% of patients was hospitalized for chemotherapy with an average cost of €7398. This amount covers also drug treatment cost during hospitalization. The average yearly cost/patient for population with melanoma was €4777 (hospitalizations: 70.8%, drugs: 14.4%, diagnostic examinations: 14.8%), with an higher cost for the subgroup of patient already in treatment the previous year before the accrual period (€6156 vs €4361). If we consider the subgroup of patient with metastatic melanoma (N=176), the overall cost rises at €15,984, most of it (60%) due to drug costs for specific therapy of melanoma and chemotherapy. Surprisingly methotrexate and cyclophosphamide appear in the top five list of prescribed drugs. **CONCLUSIONS:** This study shows high cost of patients with melanoma and how real world practice therapy, especially for metastatic melanoma, seems to be far from the guidelines recommendation. This suggests to create a regional network to correctly redirect therapeutic choices.

PHS24

COST-OF-ILLNESS STUDIES IN DIABETES MELLITUS: A SYSTEMATIC REVIEW

Ng CS[1], Lee JYC[1], Toh MPHS[2], Ko Y[1]
[1]*National University of Singapore, Singapore, Singapore,* [2]*National Healthcare Group, Singapore, Singapore, Singapore*

OBJECTIVES: Diabetes mellitus (DM) is recognised as a major health problem. Its chronic nature and complications make it a costly disease. The aim of this study is two-fold: (1) to describe the methods used in the identified cost-of-illness (COI) studies of DM and (2) to summarise their study findings regarding the economic impact of DM. **METHODS:** This is a systematic review of MEDLINE and Scopus journal articles reporting the cost of type-1 and/or type-2 DM that were published in English from 2007 to 2011. Costs reported in the included studies were converted to US dollars for comparison purposes. **RESULTS:** The systematic search yielded 30 articles that met the predetermined criteria. The studies varied considerably in their study design, perspective and included cost categories. Estimates for the total annual costs of DM ranged from US$141.6 million to US$174 billion; direct costs ranged from US$150 to US$14,060 per patient per year (pppy) whereas indirect costs ranged from US$39.6 to US$7,164 pppy. Inpatient cost was the major contributor to direct cost in half of the studies that included inpatient costs, physician services and medications. In addition, patients with DM consumed significantly more health care resources and incurred higher health care costs than patients without DM. **CONCLUSIONS:** There is a considerable economic burden associated with DM, not only on the health care system, but also on the individual and society as a whole. Future research should focus on improving methods of estimating costs, enhancing the interpretation of study findings and facilitating comparisons between studies.

PHS25

DIRECT HEALTH CARE COSTS IN PATIENTS WITH PULMONARY ARTERIAL HYPERTENSION IN THE NATIONAL INSTITUTE OF CARDIOLOGY "IGNACIO CHÁVEZ" (NIC), MEXICO CITY

Rely K[1], Pulido Zamudio T[2], Escamilla C[3], Ramírez-Neria P[2], Vazquez A[4], Cañedo A[5]
[1]*CEAHealthTech, Mexico City, D.F., Mexico,* [2]*Instituto Nacional de Cardiología - Ignacio Chávez, Mexico City, Mexico,* [3]*INSP, Mexico City, Mexico,* [4]*Actelion Pharmaceuticals Mexico, Mexico City, Mexico,* [5]*Instituto Nacional de Neurología y Neurocirugía, Mexico City, Mexico*

OBJECTIVES: To evaluate the cost of Pulmonary Arterial Hypertension (PAH) to health services in Mexico based on epidemiological trends, to project this estimate to 2012. **METHODS:** Retrospective medical chart review using data from the NIC. Clinical and resource utilization data for all patients admitted to the NIC with PAH between January 1, 2009 and 2011 were collected and the mean treatment costs per person were calculated by assigning appropriate unit cost data to all resource use. A prevalence based approach was used to estimate the economic burden of PAH. Contemporary data were obtained from epidemiological studies, government datasets, and other sources to estimate prevalence. National costs (US dollar 2012) of treatment for PAH were estimated by extrapolation of mean cost estimate per person to national incidence data for PAH. Because of uncertainties surrounding some of our estimates such as prevalence, one way sensitivity analyses were undertaken. **RESULTS:** A total of 113 PAH patients were identified and their demographic and clinical characteristics, patterns of care were examined. The mean age was 38 years, and 83% were female. The average per patient annual cost was $ 10,869 without specific treatment (min $ 137; max $155,928). The annual cost for the treatment of a single PAH patient per year with specific therapy (Bosentan) was calculated in $31.433. Aggregate national health care expenditures for treatment of PAH were USD 46.6 million In multivariate analysis, length of hospital stay, stay in ICU, were all significant independent predictors of treatment **CONCLUSIONS:** Treatment costs of PAH in Mexico are substantial and primarily driven by the intensity of hospital treatment. With the expected increase in the incidence of PAH in Mexico over the coming decades, these results emphasize the need for effective preventive and acute medical care.

PHS26

DIRECT MEDICAL COST AND QUALITY OF LIFE OF DIASTOLIC HEART FAILURE IN HONG KONG

Lee VW, Yan B, Chan CY, Leung AW, Yu CM, Lam YY
The Chinese University of Hong Kong, Shatin, Hong Kong

OBJECTIVES: The current study aimed to examine direct medical cost and humanistic outcome of diastolic heart failure (DHF) management in Hong Kong. Whether the presence of comorbidities, including hypertension, diabetes and renal impairment, affect the cost and humanistic outcome was also evaluated. **METHODS:** Retrospective, non-randomized study design was adopted. Subjects were recruited from the Heart Failure Registry of the Prince of Wales Hospital in Hong Kong between 2006 and 2008 and completion of the Minnesota Living with Heart Failure Questionnaire (MLHFQ) at 3 designated time pints to be eligible. Patients with significant valvular disorder were excluded. One year medical records since admission were reviewed. Heart failure related admissions, clinic visits, cardiovascular drugs, laboratory and diagnostic tests were recorded. The costs and MLHFQ scores in patients with or without hypertension, diabetes, and renal impairment were compared. Non-parametric Wilcoxon Signed Rank and Mann-Whitney tests were used. A p-value < 0.05 was considered statistically significant. **RESULTS:** A total of 73 DHF patients were included. The mean 1-year direct medical cost was USD 20,098 (1 USD = 7.75 HKD), with in-patient care cost contributing to the largest proportion (72.2%) of the total cost. Patients with diabetes or renal impairment were associated with a higher cost of DHF management. Significant difference was found in the renal impairment group (median cost: USD 24,763 versus USD 12,789 in no impairment group, p=0.023). The mean MLHFQ scores of the subjects improved significantly from baseline 30.81±13.89 to 12 months 15.84 ±11.32 ($p<0.0005$). **CONCLUSIONS:** The cost of management of DHF was shown to be enormous and further increased in the presence of comorbidities. With the aging population in Hong Kong, the incidence of DHF is expected to increase progressively. Further studies are demanded to guide more optimal medical resource allocation for DHF management.

PHS27

AN INCIDENCE MODEL OF THE COST OF ADVANCED PROSTATE CANCER IN SPAIN

Hart WM[1], Nazir J[2]
[1]*EcoStat Consulting UK Ltd, Sidestrand, UK,* [2]*Astellas Pharma Europe Ltd., Chertsey, UK*

OBJECTIVES: Prostate cancer is the second leading cancer diagnosed among men. In Spain the incidence of prostate cancer was 100.4 cases per 100,000 males. Advanced prostate cancer is cancer that has spread outside of the prostate capsule and may involve other parts of the body, most commonly to the lymph nodes and bones . The aim of this study was to estimate the lifetime costs of a cohort of advanced prostate cancer patients diagnosed in Spain in 2012. **METHODS:** An economic model was developed in EXCEL incorporating Spanish incidence, mortality and cost data supplemented with data from the international literature. Progression from Stage III to Stage IV was permitted. Costs were discounted. Lifetime costs were presented on an individual basis and for the entire cohort of newly diagnosed Stage III and Stage IV prostate cancer patients. **RESULTS:** Lifetime costs for advanced prostate cancer were approximately 23,032 € per patient. Using the projected incident cases for 2012, the total cost for the incident cohort of patients in 2012 would amount to 172 million euros. These results were more sensitive to changes in the ongoing costs (post initial 12 months) of Stage III prostate cancer, the rate of progression from Stage III to Stage IV and the discount rate applied to costs. **CONCLUSIONS:** This study provides an estimate of the lifetime costs of advanced prostate cancer in Spain and a framework for further research. Until improved long-term prospective or observational data do become available the current results indicate that the burden of advanced prostate cancer is substantial and will increase due to an increasing number of new cases and reductions in mortality. Any treatments that could potentially reduce the economic burden of the disease should be of interest to health care decision makers given the context of limited resources in Europe.

PHS28

EVALUATION OF HEALTH CARE COST OF DIABETES WITH CO-MORBIDITIES IN SOUTH INDIA- A COST OF ILLNESS STUDY

Mateti UV[1], Akari S[2], Buchireddy K[3], Anantha NN[1]
[1]*Manipal College of Pharmaceutical Sciences, Manipal University, Manipal, India,* [2]*St.Peter's Institute of Pharmaceutical Sciences, Warangal, India,* [3]*Rohini Super Specialty Hospital, Warangal, India*

OBJECTIVES: To evaluate the health care cost of diabetes with co-morbidities by using cost of illness analysis. **METHODS:** A prospective observational study was conducted for a period of six months at Rohini super specialty hospital, AP, India. The patients were identified during ward rounds and by regular case record reviews during study period. The enrolled patients were followed from the day of admission till the day of discharge and the relevant study data including total direct costs which include direct medical costs, cost of laboratory investigations, cost of consultation, cost of hospitalization, direct nonmedical cost includes the transportation cost to hospital and indirect costs which include days lost from work or productivity, was documented in case record form. **RESULTS:** A total of 150 patients were enrolled during the study period. The average cost per diabetic patient without complications was Rs. 1623 this includes the average total direct medical cost was Rs.1483 (91.37%), the average direct non medical cost was Rs. 20 (1.23%) and the average total indirect cost was Rs. 120 (7.4%) compared to for those with diabetes complications, Rs. 7706 for macrovascular complications, Rs. 4907 for microvascular complications and Rs. 2810 others infections. The cost for the treat diabetes with co morbidities was found to be Rs. 17046, the average total direct medical cost was Rs. 15738 (92.41%), the average direct non medical cost was Rs. 204 (1.12%) and the average total indirect cost was Rs. 1104 (6.47%). **CONCLUSIONS:** Our study results

revealed that higest/more economic burden was found in male patients (Rs. 18018), the age group of 51-60 years (Rs. 19184), the newly diagnosed (<1year) patients (Rs. 21411), the patients who stayed for 10-13 days in the hospital (Rs. 28406), the patients with two co-morbidities (Rs. 18935), the patients with agriculture as their occupation (Rs. 22306) and the patients who bearing macrovascular complications (Rs. 7706).

PHS29

12-MONTH COST OF ILLNESS ANALYSIS OF THE THYROID DISEASE IN UKRAINE

Vadziuk I, Klishch I, Markiv I
Ivan Horbachevsky Ternopil State Medical University, Ternopil, Ukraine

OBJECTIVES: Nowadays thyroid disease found in 50% of the adult population and 80% of the elderly population of Ukraine. However there is no information about pharmacoeconomic analysis of this pathology. **METHODS:** We conducted a retrospective analysis of medical records of 3417 patients with hypothyroidism (n=2143) and diffuse toxic goiter (DTG) (n=1274), and determined the total annual cost of illness (COI) including direct and indirect costs. **RESULTS:** 12-month COI of hypothyroidism was $1860681.18, similar costs of DTG was $1439632.74. Annual direct costs of treatment per patient with hypothyroidism were $229.10, of which costs of investigations accounted for $62.28 (27.18%), the cost of medicinal treatment of the underlying disease was $27.96 (12.20%) and the cost of medicinal treatment of complications associated with hypothyroidism was $138.86 (60.62%). An indirect cost of treatment per patient with hypothyroidism was $639.16. The total 12-month COI of hypothyroidism per patient was $868.26. The total 12-month COI of DTG per patient was $1130.01, of which indirect costs accounted for $746.44. Annual direct costs of treatment per patient with DTG were $383.57, of which costs of investigations accounted for $109.50 (28.55%), the cost of medicinal treatment of the underlying disease was $100.45 (26.19%) and the cost of medicinal treatment of complications associated with DTG was $173.62 (45.26%). **CONCLUSIONS:** Thus, first held in Ukraine cost of illness analysis of the thyroid disease showed that the most money spent on indirect costs.

PHS30

DIRECT MEDICAL COSTS FOR COMPLICATIONS AMONG ADULTS WITH TYPE 2 DIABETES IN A US COMMERCIAL PAYER SETTING

Yeaw J[1], Halinan S[1], Hines D[1], DeLozier AM[2], Perez M[2], Boye ME[2], Boye KS[2], Blanchette C[1]
[1]*IMS Health, Alexandria, VA, USA,* [2]*Eli Lilly and Company, Indianapolis, IN, USA*

OBJECTIVES: The study objective was to provide current patient-level paid cost estimates for complications among adult patients with Type 2 diabetes. **METHODS:** Patients ages ≥18 with ≥1 claim for a diabetes-related complication were selected from the PharMetrics Health Plan Claims Database, a large U.S. claims database including medical and pharmacy claims for >75 million patients from 80 health plans, during 2009-2010. Patients were continuously-enrolled in the same health plan ≥12 months before and ≥24 months after the first complication claim and had a diagnosis of Type-2 DM prior to their first complication. Patients with gestational diabetes, missing cost, or Medicare Reimbursement or SCHIP coverage were excluded. Diabetes-related complications included cardiovascular events, gangrene, amputation, foot ulcer, renal disease, chronic kidney disease, eye disease and neuropathy. All direct costs in the 2-years following complications were inflated to 2011 dollars. **RESULTS:** There were 113,222 adult Type-2 DM patients identified with a mean age of 58 years and 53% male. The most frequent complications included neuropathy (27%), non-proliferative retinopathy (22%), renal disease (21%) and heart failure (14%). The most frequent treatments were oral antidiabetics (69%), antihyperlipidemics (62%), ACE-inhibitors (44%), insulins (34%) and antidepressants (29%). The mean (SD) total cost per patient was $38,849 ($71,253) [inpatient $14,086 ($45,290), outpatient $17,319 ($40,887), and pharmacy $7,443 ($12,152)]. Renal disease cost among those with renal disease averaged $20,908 ($80,294), foot ulcers costs among those with amputation/foot ulcers averaged $6,358 ($18,017) and heart failure costs among those with cardiovascular/cerebrovascular disease averaged $5,764 ($24,384). **CONCLUSIONS:** Patients with Type 2 DM exhibited substantial health care costs associated with medical complications. The most costly conditions are renal disease, foot ulcers/amputations and cardiovascular/cerebrovascular diseases.

PHS31

HEALTH CARE COSTS IN PATIENTS WITH BONE METASTASIS SECONDARY TO PROSTATE CANCER COMPARED TO PROSTATE CANCER PATIENTS WITHOUT BONE METASTASIS IN THE OPTUM ONCOLOGY RESEARCH DATABASE

Seal B[1], Valderrama A[2], Xia F[3], Shermock KM[4], Asche C[5]
[1]*Bayer HealthCare Pharmaceuticals, Inc., Pine Brook, NJ, USA,* [2]*Bayer, Cedar Grove, NJ, USA,* [3]*Bayer, Wayne, NJ, USA,* [4]*Analysis by Design LLC, Lutherville Timonium, MD, USA,* [5]*University of Illinois, Peoria, IL, USA*

OBJECTIVES: To compare health care costs among patients with bone metastasis secondary (BMS) to prostate cancer (PC) compared to a matched cohort of patients with PC without BM. **METHODS:** A retrospective analysis was performed using the OPTUMInsight Oncology claims database. Male patients aged ≥18 years, with BMS to PC between July 1, 2003 and December 31, 2011, who were insured by a commercial health plan were identified (first BM termed "index"). Patients were required to have > 6 months continuous eligibility prior to and > 6 months subsequent to the first PC diagnosis in the index period (January 1, 2004 - June 30, 2010). Patients with a diagnosis of BMS to PC were identified and matched 1:1 to PC patients without BM based on age, geographic region, payer type and year of study entry (index year). Patients were followed from index to death or database end. Study measures included health care costs. **RESULTS:** A total of 1900 patients with BMS to PC were matched to 1890 PC patients without BM. Among those patients with BMS to PC versus those PC patients without BM, respectively, the mean (SD) annualized total follow-up costs per patient were $69,517 ($77,127) and $21,364 ($29,994). The largest proportion of mean costs were attributable to all other medical costs in the BMS to PC cohort (29.5%), followed by outpatient visits (26.4%), inpatient hospitalizations (25.9%), and total pharmacy costs (18.1%). Among the PC patients without BM cohort the largest proportion of mean costs were inpatient hospitalizations (29.6%), followed by all other medical costs (28.9%), outpatient visits (27.6%), and total pharmacy costs (12.6%). **CONCLUSIONS:** Patients with BMS to PC had 3.25 fold more costs compared to the PC patients without BM, mainly driven by inpatient and outpatient costs. This indicates a substantial economic burden incurred by patients with BMS to PC.

PHS32

COSTS ASSOCIATED WITH HOSPITAL ADMISSION FOR HEART FAILURE IN TWO HOSPITALS IN THE CITY OF BOGOTA, COLOMBIA

Dennis R[1], Rojas M[2], Tamayo D[2], Rodriguez V[2], Brophy J[3], Castro H[2]
[1]*Fundacion Cardioinfantil, Bogota, Colombia,* [2]*Universidad Javeriana, Bogota, Colombia,* [3]*McGill University, Montreal, QC, Canada*

OBJECTIVES: To describe the direct medical costs associated with management of hospital admission due to heart failure. **METHODS:** Cohort study of patients hospitalized due to heart failure during 2009 and 2010. 1426 patients with heart failure hospitalized in two tertiary care hospitals in Bogota that manage mainly patients from the Colombian contributive obligatory health care plan (workers and their families). All patients with a discharge diagnosis of heart failure during the time of the study were included. The point of view of the study was that of the third-party payer. Bills for each patient´s costs of care sent and accepted by the third party payer were quantified and broken down by cost source. Costs were adjusted to Colombian pesos of 2011 (US$1= COL $1,794). **RESULTS:** The hospital bills of 1426 discharged patients (352 in one hospital and 1074 in the second hospital) were analyzed. The mean costs associated with an event of hospitalization, adjusted to 2011, was COL$ 10,400,213 (SD COL$ 22,552,954; median 3,171,129; IQ Range: 1,506,654-6,802,384). Out of this total cost, 32,8% (SD 20.9%) corresponded to medication costs; 26.1% (SD. 15,5%) to hospital stay; 13,1% (SD 12,9%) to medical fees; 12,5% (SD 9,8%) to laboratory tests, and 18,7% (SD 13,4%) to other costs. **CONCLUSIONS:** Hospitalizations costs in Colombia due to heart failure are substantial and highly variable, when compared with those for other conditions. The main driver of these costs is medication use. This study should set the basis for the estimation of the cost-effectiveness of interventions that decrease the rate of hospitalization or the length of stay of these patients.

PHS33

RESOURCE USE PATTERNS AND COSTS ASSOCIATED WITH THE TREATMENT OF MYELOFIBROSIS, POLYCYTHEMIA VERA AND ESSENTIAL TROMBOCYTHEMIA IN THE BRAZILIAN PUBLIC HEALTH CARE SYSTEM

Alves MR[1], Teich V[2], Fahham L[3]
[1]*Novartis Pharmaceuticals, São Paulo, São Paulo, Brazil,* [2]*MedInsight, São Paulo, São Paulo, Brazil,* [3]*MedInsight, São Paulo, Brazil*

OBJECTIVES: To evaluate the resource use and associated costs of patients treated for polycythemia vera (PV), myelofibrosis (MF) and essential thrombocythemia (ET) in the Brazilian public health care system. **METHODS:** DATASUS is a Brazilian comprehensive database that reports all outpatient and inpatient services provided by the Brazilian public health care system. Patients identified with the diagnosis of PV (ICD 10 D45), MF (D47.1) and ET (D47.3) in the Datasus database between January 2010 and December 2010 were included in the analysis, irrespective of the date of diagnosis. Patients' profile was defined based on age, sex and geographical region. Costs and resource use patterns were analyzed for the year 2010 and characterized by the percentage of patients using each health resource, the average quantity per patient and the total associated cost. Analyses were segmented by outpatient (drugs and transport) and inpatient (hospitalization) costs. **RESULTS:** The number of patients identified with the diagnosis of PV, MF and ET were 1533, 2130 and 2413, respectively. Their average age was 65, 63 and 63 years, and the percentage of females equaled 55%, 55% and 66%, respectively. The majority of patients live in the southeast region of Brazil. The three diseases present a similar treatment pattern. The majority of outpatient costs are associated to first line and second line chemotherapy treatment (21.9% and 77.5% for PV; 12.6% and 86.9% for MF; 12.6% and 87.2% for ET, respectively). The average annual outpatient and inpatient costs per patient were: R$2,581.27 and R$15.27 for PV; R$3,341.02 and R$45.22 for MF; R$ 4,070.28 and R$15.92 for ET) (1 USD = R$2.04). **CONCLUSIONS:** The current treatment for PV, MFand ET in the Brazilian public health care system relies basically on the use of first and second line chemotherapy. These items are responsible for more than 90% of the annual treatment cost.

PHS35

COST-EFFECTIVENESS OF LIFESTYLE INTERVENTION AMONG ADULTS AT A HIGH RISK FOR HYPERTENSION AND DIABETES: A HEALTH PLAN PERSPECTIVE

Zhuo X, Zhang P
Centers for Disease Control and Prevention, Atlanta, GA, USA

OBJECTIVES: Lifestyle intervention is effective in reducing the risk of hypertension and diabetes. Previous studies suggested such an intervention, if targeted to persons with prediabetes alone (defined by HbA1c of 5.7-6.3% or fasting plasma glucose of 110-125 mg/dL), was cost-saving but would take more than 20 years to recoup the intervention costs. Health plans typically have much shorter planning horizons. Therefore, a more selective population might be